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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,524

09/19/2005

Athanassios Tzikas

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EXAMINER

KHAN, AMINA S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,524	Applicant(s) TZIKAS ET AL.	
	Examiner AMINA KHAN	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/17/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 5-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's amendments filed on October 17, 2008.
2. Claims 1,2 and 5-13 are pending. Claims 3 and 4 have been cancelled. Claims 1 and 9 have been amended.
3. The rejection of claim 9 under 35 U.S.C. 112, second paragraph, is withdrawn in view of applicant's amendments to the claim.
4. The rejection of claims 1,2,5-7,9 and 13 under 35 U.S.C. 102(b) as being anticipated by Hoyer et al (US patent 4,323,497) is withdrawn in view of applicant's amendments.
5. The rejection of claims 1, 11 and 12 under 35 U.S.C. 102(b) as being anticipated by Lacroix et al (US patent 5,972,084) is withdrawn in view of applicant's amendments.
6. Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (US patent 4,323,497) for the reasons set forth in the previous office action.

7. The rejection of claim 1 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 8 of U.S. Patent No. 5,750,662 is withdrawn in view of applicant's amendments.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

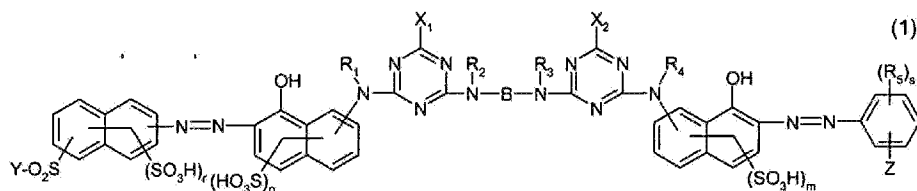
9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1,2, 5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (US patent 4,323,497).

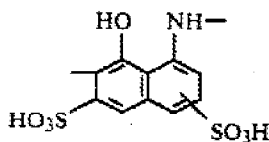
With regards to claim 1, Hoyer et al discloses a reactive dye of formula

Art Unit: 1796



(C1/L5-18,

where K1 and K2 are preferably identical and are left radical found at C1/L45-50

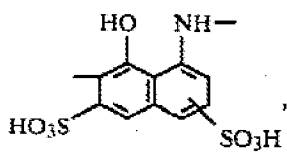


where R is hydrogen,

, D is a benzene nucleus or naphthalene nucleus (C2/L2-3), R₁ ortho to azo group can be halogen or sulfonic acid group (C2/L4-9) and X is preferably β-sulfatoethyl or vinyl (C2/L17-18) and A is an aliphatic radical of 2-10 carbons (C2/L19))

wherein R₁, R₂, R₃ and R₄ are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (K1 and K2 are preferably identical and are left radical found at C1/L45-50 where R is hydrogen), (R₅)_s denotes s identical or different substituents selected from the group halogen, sulfo, carboxy, C1-C4alkyl and C1-C4alkoxy (C2/L4-9), B is an aliphatic bridging member (C2/L19, A is an aliphatic radical of 2-10 carbons), X₁ and X₂ are halogen (C3/L13-15, Y can be chlorine), r is an integer from 0 to 2, s is an integer from 0 to 3, and n and m are each independently of the other a number 1 or 2 (K1 and K2 are preferably identical and are left radical found at C1/L45-50 and contains 2 sulfonic acid groups,

Art Unit: 1796



, and Z is a fiber-reactive group of formula

-SO₂-Y (2a) (C2/L17-18, X is preferably β-sulfatoethyl or vinyl),-NH-CO-(CH₂)_k-SO₂-Y (2b),-CONH-(CH₂)_l-SO₂-Y (2c),-NH-CO-CH(Hal)-CH₂-Hal (2d) (C2/L1-2) or-NH-CO-C(Hal)=CH₂ (2e) (C2/L1-2)

wherein Hal is chlorine or bromine, k and l are each independently of the other a number 2, 3 or 4, and Y is vinyl or a radical -CH₂-CH₂-U and U is a group removable under alkaline conditions (C2/L17-18, X is preferably β-sulfatoethyl or vinyl);

- R₁, R₂, R₃ and R₄ are each independently of the others hydrogen or C1-C4alkyl (K1 and K2 are preferably identical and are left radical found at C1/L45-50 where R is hydrogen); (claim 2)

-wherein B is a radical of formula -CH₂-CH(R₇)- or -(R₇)CH-CH₂- wherein R₇ is C1-C4alkyl (C2/L19, A is an aliphatic radical of 2-10 carbons);

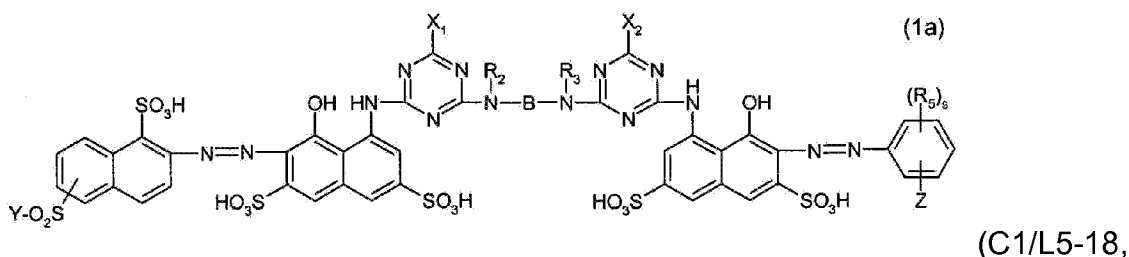
- wherein X1 and X2 are chlorine (C3/L13-15, Y can be chlorine); (claim 4)

- wherein n and m are in each case the number 2 (K1 and K2 are preferably identical and are left radical found at C1/L45-50, each containing 2 sulfonic acid groups, which would amount to n and m each being 2); (claim 5)

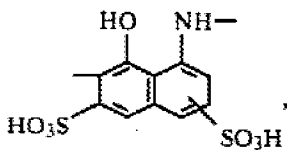
Art Unit: 1796

- wherein Z is a radical of formula $-\text{SO}_2\text{-Y}$ wherein Y is vinyl or β -sulfatoethyl (C2/L17-18, X is preferably β -sulfatoethyl or vinyl). (claim 6)

With regards to claim 7, Hoyer et al discloses a reactive dye of formula

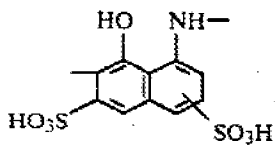


where K1 and K2 are preferably identical and are left radical found at C1/L45-50 where



R is hydrogen, D is a benzene nucleus or naphthalene nucleus (C2/L2-3), R₁ ortho to azo group can be halogen or sulfonic acid group (C2/L4-9) and X is preferably β -sulfatoethyl or vinyl (C2/L17-18) and A is an aliphatic radical of 2-10 carbons (C2/L19))

wherein R₂ and R₃ are hydrogen (K1 and K2 are preferably identical and are left



radical found at C1/L45-50 where R is hydrogen, (R₅)_s denotes s identical or different substituents selected from the group sulfo, methyl and methoxy, B corresponds to a radical of formula $-\text{CH}_2\text{-CH(R}_7\text{)-}$ or $-(\text{R}_7)\text{CH-CH}_2\text{-}$ wherein R₇ is methyl (C2/L19, A is an aliphatic radical of 2-10 carbons), X₁ and X₂ are chlorine (C3/L13-15, Y can be chlorine), s is an integer from 0 to 2, and Z is a fiber-reactive

Art Unit: 1796

group of formula $-\text{SO}_2\text{-Y}$ wherein Y is vinyl or β -sulfatoethyl (C2/L17-18, X is preferably β -sulfatoethyl or vinyl).

With regards to claim 9, 10, and 13, Hoyer et al discloses all of the claim limitations as set forth above as well as a method of dyeing or printing of hydroxyl-group-containing (C16/L14, cellulose fiber materials) or nitrogen-containing fiber materials (C16/L16-17, polyamide fibers), which comprises contacting (C16/L22-24, applied) said materials with a tinctorially effective amount of a reactive dye of formula (1) as set forth above;

- wherein cellulosic fiber materials are dyed or printed (C16/L14, cellulose fiber materials; see also C16/L32-34, in printing processes for cellulose fibers; C16/L55, dyeing on cotton); (claim 10)

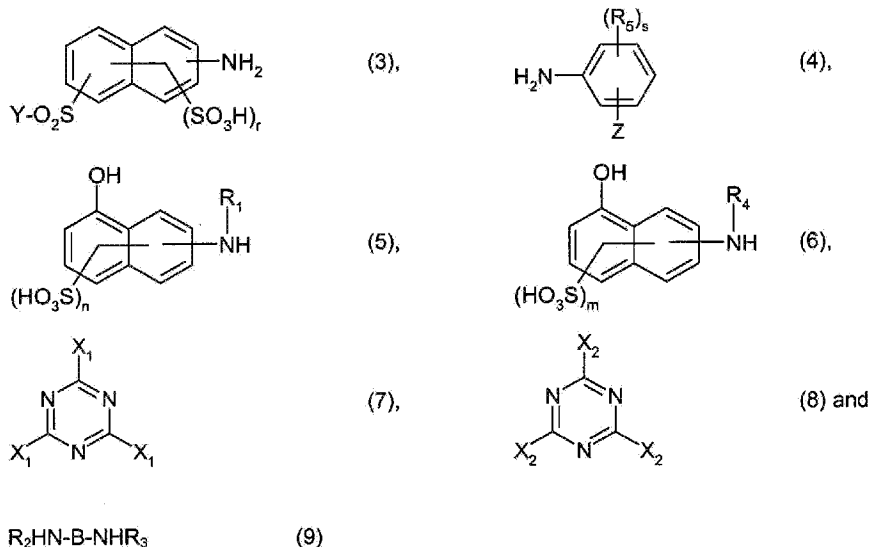
- wherein cotton-containing fiber materials are dyed or printed (C16/L55, dyeing on cotton). (claim 13)

With regards to claim 8, Hoyer et al teaches all of the claim limitations set forth above and also discloses a process for the preparation of a reactive dye of formula (1) set forth above.

Hoyer et al. are silent as to radicals of formula $-\text{CH}_2\text{-CH(R7)-}$ or $-(\text{R7})\text{CH-CH}_2-$ wherein R7 is methyl. While Hoyer et al does disclose the diazotization of compounds of formula (3) or (4) (D is a benzene nucleus or naphthalene nucleus (C2/L2-3)) followed by coupling of 1 mole each of diazotized (3) or (4) with 1 mole of bridged dimer derived from compounds of formula (5), (6), (7), (8), and (9) in one embodiment (see C4/L13-36, where K1 can be identical to K2), Hoyer et al does not specifically teach the

Art Unit: 1796

condensation of compounds (7), (8), and (9) to form the bridged dimer, wherein approximately 1 molar equivalent of each of the compounds of formulae



are reacted with one another in a suitable order, R_1 , R_2 , R_3 , R_4 , R_5 , B , X_1 , X_2 , Y , Z , n , m , r and s in each case being as defined above.

However, one having ordinary skill in the art would have recognized that the compound described by Hoyer et al at C4/L30-35 would have been readily accessed by the nucleophilic aromatic substitution of 1 mole of diamine at C6/L15 with 2 moles of cyanuric chloride disclosed in an example by Hoyer et al (C17/L36) as it is known in the art that primary amines would be expected to successfully displace a chloride atom on an aromatic ring such as that of cyanuric chloride.

It would have been further obvious to one of ordinary skill in the art at the time the invention was made that the compositions of Hoyer et al. would encompass the instantly claimed radicals of formula $-CH_2-CH(R_7)-$ or $-(R_7)CH-CH_2-$ wherein R_7 is methyl because Hoyer et al. clearly teach the utility of bridging members with aliphatic radicals of 2-10C atoms. Selecting the instantly claimed formulas from this list would

Art Unit: 1796

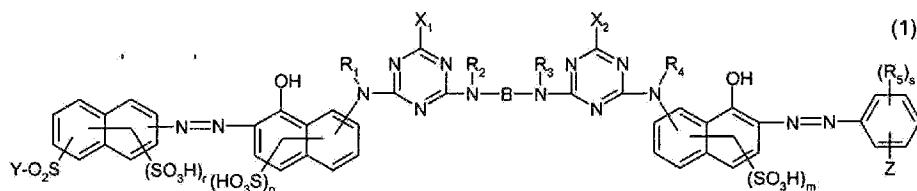
just be optimization to arrive at improved dyeing of textiles with the disazo dyes. Furthermore the other radicals of the prior art would be homologs and it would be expected that aliphatic radicals with 7-10C atoms would have similar properties to those instantly claimed as compounds with similar structures suggest one another. While the examples of Hoyer are directed to alkylene radicals, this is just a preferred embodiment and not limiting to the invention. All disclosures of the prior art, including non-preferred embodiment, must be considered. See *In re Lamberti and Konort*, 192 USPQ 278 (CCPA 1967); *In re Snow* 176 USPQ 328 (CCPA 9173) Nonpreferred embodiments can be indicative of obviousness, see *Merck & Co. v. Biocraft Laboratories Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1989); *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Kohler*, 177 USPQ 399. A reference is not limited to the working examples, see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982).

11. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (US patent 4,323,497) in view of Lacroix et al (US patent 5,972,084).

Hoyer et al. are relied upon as described in paragraph 10.

Hoyer et al. do not teach inks and inkjet printing.

With regards to claim 11, Lacroix et al discloses a reactive dye of formula



(C1/L45-

C6/L25, where A1 and A2 are radicals for formula 5a and 5b (C6/L1-24), bridge members B1 are organic bridge members (C1/L60-65), Z is vinyl or a radical -

Art Unit: 1796

$\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group (C2/L52-53), and R_1 , R_2 , R_3 , and R_4 are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (C1/L59-60))

wherein R_1 , R_2 , R_3 and R_4 are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (C1/L59-60; R_1 , R_2 , R_3 , and R_4 are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl), $(\text{R}_5)_s$ denotes s identical or different substituents selected from the group halogen, sulfo, carboxy, C1-C4alkyl and C1-C4alkoxy (C6/L11-13), B is an aliphatic bridging member (C3/L60-61, bridge members B1 are organic bridge member), X_1 and X_2 are halogen (C3/L10-15, X_1 and X_2 are chlorine), r is an integer from 0 to 2, s is an integer from 0 to 3, and n and m are each independently of the other a number 1 or 2 (radicals of formula 5a and 5b can contain 2 sulfonic acid groups naphthalene rings), and Z is a fiber-reactive group of formula

$-\text{SO}_2-\text{Y}$ (2a) (C2/L52-53, Z is vinyl or a radical $-\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group),

$-\text{NH}-\text{CO}-(\text{CH}_2)_k-\text{SO}_2-\text{Y}$ (2b),

$-\text{CONH}-(\text{CH}_2)_l-\text{SO}_2-\text{Y}$ (2c),

$-\text{NH}-\text{CO}-\text{CH}(\text{Hal})-\text{CH}_2-\text{Hal}$ (2d) (C5/L27-32) or

$-\text{NH}-\text{CO}-\text{C}(\text{Hal})=\text{CH}_2$ (2e) (C5/L27-32)

wherein Hal is chlorine or bromine (C5/L31-32), k and l are each independently of the other a number 2, 3 or 4, and Y is vinyl or a radical $-\text{CH}_2-\text{CH}_2-\text{U}$ and U is a group removable under alkaline conditions (C2/L52-53, Z is vinyl or a radical $-\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group).

With regards to claims 11, Lacroix et al teaches all of the claim limitations set forth above, as well as an aqueous ink comprising a reactive dye of formula (1) set forth above (C6/L41, aqueous ink).

With regards to claims 12, Lacroix et al teaches all of the claim limitations set forth above, as well as a method of printing textile fiber materials, paper or plastics films by the inkjet printing method, which comprises contacting said materials with an aqueous ink set forth above (C14/L26-27, drops of ink are sprayed onto substrate).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the methods of Hoyer et al. by incorporating the dyes of Hoyer et al. into aqueous inks used in ink jet printing method because Lacroix et al. teach using similar dyes to color similar substrates for the benefits of high color strength and good fastness when applied to cellulosic textiles. Furthermore, Hoyer et al. invite the methods of printing cellulosic textiles with the instantly claimed dyes also for the benefits of high fastness and good color build-up.

Response to Arguments

12. Applicant's arguments filed regarding Hoyer et al. have been fully considered but they are not persuasive. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the compositions of Hoyer et al. would encompass the instantly claimed radicals of formula $-\text{CH}_2-\text{CH}(\text{R}_7)-$ or $-(\text{R}_7)\text{CH}-\text{CH}_2-$ wherein R7 is methyl because Hoyer et al. clearly teach the utility of bridging members with aliphatic radicals of 2-10C atoms. Selecting the instantly claimed formulas from this list would just be optimization to arrive at improved dyeing of textiles with the disazo dyes.

Art Unit: 1796

Furthermore the other radicals of the prior art would be homologs and it would be expected that aliphatic radicals with 7-10C atoms would have similar properties to those instantly claimed as compounds with similar structures suggest one another. While the examples of Hoyer are directed to alkylene radicals, this is just a preferred embodiment and not limiting to the invention. All disclosures of the prior art, including non-preferred embodiment, must be considered. See *In re Lamberti and Konort*, 192 USPQ 278 (CCPA 1967); *In re Snow* 176 USPQ 328 (CCPA 9173) Nonpreferred embodiments can be indicative of obviousness, see *Merck & Co. v. Biocraft Laboratories Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1989); *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Kohler*, 177 USPQ 399. A reference is not limited to the working examples, see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982).

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMINA KHAN whose telephone number is (571)272-5573. The examiner can normally be reached on Monday through Friday, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lorna M Douyon/
Primary Examiner, Art Unit 1796

/Amina Khan/
Examiner, Art Unit 1796
January 29, 2009